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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/625,493	07/25/2000	Morio Gaku	2000-1033A	6721
7590 01/21/2004 Wenderoth Lind & Ponack LLP 2033 K Street N W Suite 800 Washington, DC 20006			EXAMINER PIERCE, JEREMY R	
			ART UNIT	PAPER NUMBER
			1771	

DATE MAILED: 01/21/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/625,493

Applicant(s)

GAKU ET AL.

Examiner

Jeremy R. Pierce

Art Unit

1771

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 15 October 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-5 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-5 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ 6) ☐ Other: _____

DETAILED ACTION

Response to Amendment

1. Applicant's amendment filed on October 15, 2003 has been entered. Claim 1 has been amended. Claims 1-5 are currently pending. Applicant's Declaration submitted on August 28, 2003 is sufficient to overcome the 35 USC 102(e) rejections set forth in sections 3 and 4 of the last Office Action. Applicant's Terminal Disclaimer filed on August 28, 2003 is sufficient to overcome the Double Patenting rejection set forth in section 8 of the last Office Action.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claims 1-5 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 1 recites, "A copper-clad laminate of a glass fabric/thermosetting resin base material, which is used to form a small-diameter hole with a carbon dioxide gas laser." How is the laminate "used" to form a small-diameter hole?

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 1-5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ishii et al. (U.S. Patent No. 5,368,921) in view of Touzaki (JP 11-77892, with an English translation provided).

Ishii et al. provide a metal foil-clad laminate obtained by lamination molding a resin-impregnated substrate and a metal foil (column 2, lines 22-24). The substrate can be a woven glass fabric with a preferred thickness of 0.05 to 0.2 millimeters (column 2, lines 57-66). The resin is dissolved in a solvent (column 4, line 50). Ishii et al. do not specifically provide a weight for the woven glass fabric, but do teach using conventional substrates that can have an electrical use. The weight range of 15 to 165 g/m² cited by the Applicant is very common in the art of printed circuit substrates. Adjusting basis weight would be a matter of optimizing a result effective variable, since basis weight would affect the rigidity and flexibility in the composite. It would have been obvious to one skilled in the art to use a woven glass material with a basis weight between 15 and 165 g/m² in order to gain the properties that are optimal in a printed circuit board, such as being lightweight and rigid, since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. *In re Boesch*, 617 F.2d 272, 205 USPQ 215 (CCPA 1980). Ishii et al. also do not specifically mention the gas permeability of the glass fabric. Touzaki teaches the permeability of glass fabrics for making a copper-clad laminate is preferably 1-15 cc/cm²/sec to obtain a laminate where air bubbles aren't present and the resin constituent sufficiently sinks into the glass fabric (Paragraph 10). It would have been obvious to one having ordinary skill in the art to use a glass fabric with a permeability between 1-15 cc/cm²/sec in the laminate of Ishii et al.

in order to have the resin sufficiently sink into the prepreg without forming air bubbles, as taught by Touzaki. With regard to claim 2, Ishii et al. teach the thermosetting resin is blended with inorganic filler in the amount of from 10 to 45% by weight based on the total amount of the resin solid or from 5 to 30% by weight of the substrate (column 4, lines 6-19). With regard to claim 3, Ishii et al. disclose the prepreg to have 55% weight of resin solid and inorganic filler in his examples (column 5, line 7). Therefore, the glass content of the prepreg must be 45% by weight, which falls within the Applicant's claimed range of 25 to 70% by weight. With regard to claim 4, with the disclosed substrate thickness of 0.05 to 0.2 millimeters disclosed (column 2, lines 57-66), the thickness of the copper-clad laminate would inherently fall into the Applicant's claimed range of 0.03 to 0.15 millimeter upon typical impregnation of the resin and when typical copper foil is clad on the outside of it. With regard to claim 5, Ishii et al. disclose using a cyanate ester resin as the thermosetting resin used to impregnate the substrate (column 3, lines 16-18).

Response to Arguments

6. Applicant's arguments filed October 15, 2003 have been fully considered but they are not persuasive.

7. Applicant argues that Ishii et al. do not disclose the glass woven fabric used in the present invention, having a specified gas permeability. The Examiner agrees that Ishii et al. do not teach any specific gas permeability. The Touzaki reference was used to show the features of the claimed gas permeability of the woven fabric. In response to applicant's arguments against the references individually, one cannot show

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nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986).

8. Applicant argues that Touzaki is in contrast with the present invention because Touzaki uses solvent-less resin composition. However, the Touzaki reference was not used to show the resin feature of the claim. Ishii et al. teach the resin is put into a solvent, as set forth above in the rejection. The solvent of Ishii et al. meets the recited claims. In response to applicant's arguments against the Touzaki reference individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references.

9. Applicant argues that neither Ishii et al. nor Touzaki are directed to forming holes with a carbon dioxide gas laser. The Examiner agrees. However, the functional limitation in claim 1 where the material "is used to form a small-diameter hole with a carbon dioxide gas laser" is a recitation of an intended use of the product. The intended use of a product is not given patentable weight in a product claim. The combination of Ishii et al. and Touzaki meet all structural limitations of the product claim, so the rejection is valid.

Conclusion

10. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within

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TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jeremy R. Pierce whose telephone number is (571) 272-1479. The examiner can normally be reached on Monday-Thursday 7-4:30 and alternate Fridays 7-4.

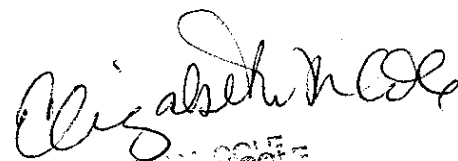
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Terrel Morris can be reached on (571) 272-1478. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (571) 272-0994.

JRP

JRP

January 9, 2004


ELIZABETH M. COLE
PRIMARY EXAMINER